

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 24

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte CHI-FUNG LO and JOHN TURN

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Appeal No. 1998-0242  
Application 08/295,593

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ON BRIEF

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Before KIMLIN, WALTZ and DELMENDO, Administrative Patent Judges.  
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1, 4-11, 13, 14 and 16-19. Claim 1 is illustrative:

1. Apparatus for making metal oxide sputtering targets, comprising:

a graphite die assembly, including a graphite ring and a pair of opposing graphite punches, defining a die

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made of a material selected from the group consisting of  $\text{Al}_2\text{O}_3$ ,  $\text{MgO}$ ,  $\text{ZrO}_2$ ,  $\text{SiC}$  and  $\text{Si}_3\text{N}_4$ , and being capable of withstanding hot-pressing at a temperature of at least  $1100^\circ\text{C}$ ;

whereby said barrier sleeve substantially prevents a reducing gas from penetrating to the powdered metal oxide target starting material, said barrier sleeve being substantially unreactive with the powdered target starting material during hot pressing, and said powdered target starting material being volatile and thermally unstable during hot pressing.

The examiner relies upon the following references as evidence of obviousness:

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| Brierley | 2,886,849 | May 19, 1959 |
|----------|-----------|--------------|

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|----------------------|-----------------|---------------|
| Weigert <sup>1</sup> | DE 41 24 471 C1 | Jun. 24, 1991 |
|----------------------|-----------------|---------------|

Appellants' claimed invention is directed to an apparatus and process for making metal oxide sputtering targets. The apparatus comprises a graphite die assembly and a barrier sleeve which lines the graphite die assembly die cavity. The barrier sleeve is made of a material selected from a Markush group that includes  $\text{Al}_2\text{O}_3$ . According to appellants, "[t]he purpose of the barrier sleeve is to substantially prevent a reducing gas from penetrating to the powdered metal oxide starting material" (page

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Appealed claims 1, 4-7, 11, 13, 14, 16, 18 and 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Weigert. Claims 8-10 and 17 stand rejected under 35 U.S.C. § 103 as being unpatentable over Weigert in view of Brierley.

We have thoroughly reviewed the respective positions advanced by appellants and the examiner. In so doing, we find ourselves in agreement with appellants that the prior art cited by the examiner fails to establish a prima facie case of obviousness for the claimed subject matter. Accordingly, we will not sustain the examiner's rejections.

The examiner cites Example 1 of Weigert for disclosing an apparatus and method for forming metal oxide sputtering targets wherein a graphite is employed which is lined with boron nitride rather than appellants'  $\text{Al}_2\text{O}_3$ . However, the examiner also cites Example 2 of Weigert for disclosing pressing powdered metal oxide in a pressing can which is lined with  $\text{Al}_2\text{O}_3$  paper. Since reference Example 2 demonstrates that  $\text{Al}_2\text{O}_3$  does not react with indium oxide and tin oxide, the examiner concludes that it would

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While we appreciate that there is a certain appeal to the examiner's approach in formulating the rejection, it is our judgment that the examiner's rejection is based upon the impermissible use of hindsight. It is Example 1 of Weigert which utilizes appellants' graphite die assembly and this Example only discloses the use of boron nitride as a lining for the graphite mold. Example 2 of Weigert, which discloses the use of  $\text{Al}_2\text{O}_3$  paper, does so in the context of a steel pressing can, not a graphite mold. There is no evidence of record that materials which are typically used as linings for steel pressing cans are interchangeable with linings for graphite hot pressing molds. Consequently, there is no factual support for the examiner's conclusion that it would have been obvious to substitute a lining material used in a steel pressing can for a lining of a hot pressing mold. The examiner does not propose that the  $\text{Al}_2\text{O}_3$  paper of Weigert's Example 2 be substituted for the boron nitride lining of Weigert's Example 1. In our view, the examiner's rationale regarding the inertness of  $\text{Al}_2\text{O}_3$  to the metal oxide

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Brierley, cited by the examiner for additional features recited in claims 8-10 and 17, does not remedy the deficiency of Weigert discussed above.

In conclusion, based on the foregoing, we are constrained to reverse the examiner's rejections.

REVERSED

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| EDWARD C. KIMLIN            | ) |                 |
| Administrative Patent Judge | ) |                 |
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|                             | ) | BOARD OF PATENT |
| THOMAS A. WALTZ             | ) | APPEALS AND     |
| Administrative Patent Judge | ) | INTERFERENCES   |
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|                             | ) |                 |
| ROMULO H. DELMENDO          | ) |                 |
| Administrative Patent Judge | ) |                 |

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